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9. The food reserves in certain plants.

Co-operation.—Co-operative relations have been established with the Committee on Agriculture of the National Research Council, the U. S. Department of Agriculture, the Botanical Division of the Carnegie Institution, research laboratories of universities, agricultural experiment stations, botanic gardens, the Council on Pharmacy and Chemistry of the American Medical Association, the Cereal Conference, and the Association of Seedsmen. The purpose of this co-operation is the exchange of information in reference to problems under way, and in reference to pressing problems that have been encountered; and also the sharing of facilities for investigation. It should be said that information in reference to problems under way is not intended as a notice of preemption, the feeling being that several attacks upon a problem may bring speedier results.

Additional Activities.—Efforts are being made to:

1. Effect contact with manufacturers who may need information as to plant materials and products, and who may not know the most speedy way of obtaining it.
2. Effect contact with farmers so that they may receive and apply the information and advice that is accumulating.
3. Make some of the results commercially available, without specially favoring any commercial organization. Some of these results would ordinarily involve patents or trade secrets.

JOHN M. COULTER, *Chairman.*

NATIONAL RESEARCH COUNCIL

MEETINGS OF THE EXECUTIVE COMMITTEE

The sixteenth meeting of the Executive Committee was held at the offices of the Council in New York City, April 4, 1917. Messrs. Chittenden, Dunn & Pupin, and the Secretary were present.

The Secretary announced the appointment of Mr. Lewis B. Stillwell to the Council. It was voted that Mr. Stillwell be appointed a member of the Engineering Committee.

The Secretary also announced the appointment of Dr. Joseph S. Ames and of Dr. Hollis Godfrey to the Council; the resignation of Dr. Hale as Chairman of the Committee on Research in Educational Institutions, and the acceptance by Dr. Chittenden of that chairmanship.

Mr. Dunn reported a gift of five thousand dollars from Mr. Edward D. Adams to the Engineering Foundation.

Dr. Chittenden presented a letter from certain members of the staff of the Sheffield Scientific School, bringing up several very practical questions on the metallurgy of brass, particularly for the use of the Army and Navy. After discussion, the letter was referred to the Secretary, to take the matter up with General Crozier, and possibly with others.

The seventeenth meeting of the Executive Committee was held at the offices of the Council in Washington, April 11, 1917. Messrs. Hale, Stratton, and the Secretary were present. Dr. Walcott was consulted by telephone and approved the proceedings. There was also present Dr. MacCallum, of the Canadian Research Council.

Professor R. W. Wood, of Johns Hopkins University and Professor Arthur Gordon Webster, of Clark University, were nominated members of the Council.

A Food Committee was authorized, Dr. Hale to name the Chairman and the personnel of the Committee.

Dr. Hale announced the appointment of Professor H. H. Donaldson of the Wistar Institute, as Chairman of the Anatomy Committee. This appointment carries with it appointment to the Council.

A Committee on Psychology was authorized, Dr. Hale to name the Chairman, who will be a member of the Council.

Dr. Millikan was elected a Vice-Chairman of the Council.

The eighteenth meeting of the Executive Committee was held at the offices of the Council in Washington, April 16, 1917. Messrs. Carty, Chittenden, Conklin, Hale, Noyes, Pearl, Walcott, and the Secretary were present.

This meeting was called at the suggestion of Dr. Noyes to discuss the proposed relations of the National Research Council with the State Research Committees of Councils, which may be appointed in different states of the Union. The immediate occasion was the appointment of a State Research Committee in California. It was voted to telegraph to the State Research Committee of California, an expression of a desire to co-operate with them, and to follow this telegram with a letter of explanation.

It was voted to request the President of the National Academy of Sciences to appoint Mr. John R. Freeman, and Professor John C. Merriam members of the Council.

The action of the Military Committee in appointing a Noxious Gas Committee was approved.

An Optical Glass Committee was authorized, with Dr. Millikan as Chairman.

Mr. John R. Freeman was appointed a member of the Engineering Committee.

The nineteenth meeting of the Executive Committee was held at the offices of the Council in Washington, May 3, 1917. Messrs. Carty, Dunn, Hale, Noyes, Pupin, Stratton, and the Secretary were present.

Dr. Pupin spoke of the urgent necessity for further information on the status of the submarine detection investigation. He urged that all members of the Council who are working on the matter be informed regarding the tests which have already been made and that opportunity be given to take

part in preliminary tests, in order to learn the conditions surrounding the problem. Dr. Carty spoke of the work that the Western Electric Company and the General Electric Company are doing in connection with the Submarine Signalling Company.

The twentieth meeting of the Executive Committee was held at the offices of the Council in Washington, May 24, 1917. Messrs. Dunn, Hale, Millikan, Stratton, Vaughan and Walcott, were present. Messrs. Durand, Mendenhall and Pegram were also present upon invitation. Dr. Bogert, after election as a member of the Executive Committee, was also present.

It was decided that Dr. Millikan, in view of his position as Vice-chairman of the Council, should be regarded as an ex-officio member of the Executive Committee. The vacancy in the Committee thereby created was filled by the election of Dr. M. T. Bogert, Chairman of the Chemistry Committee.

Upon motion it was voted that all sub-committees of the Council be appointed by the Executive Committee upon recommendation of the Chairmen of Committees.

Report was made upon the present difficulty in obtaining release from England of Austrian and German scientific journals addressed to societies and individuals in the United States. The Chairman thereupon was requested to present the facts to the State Department with an expression of the desire of the National Research Council to have steps taken to secure the release and uninterrupted transmission of such periodicals, if this can be done without conflict with other obligations.

Dr. Stratton, Chairman of the Committee on Census of Research, reported progress in the distribution of Census Blanks, stating that for this purpose institutions in the United States had been classified as follows: 1. Educational; 2. Industrial; 3. Other than Educational and Industrial. The necessary expenses of the work of the Committee were considered and the Chairman further reported that within a few days the question of indexing and rendering available the information now being received would be considered.

Upon motion it was voted that the appointment of the following Mathematics Committee be confirmed, with the understanding that three additional members be added to this Committee upon nomination by the National Academy of Sciences: Professor E. H. Moore, Chairman; Messrs. E. W. Brown, F. R. Moulton, R. S. Woodward, E. B. Wilson, George D. Birkhoff.

Upon motion of Dr. Millikan the appointment of a Sub-committee on Visibility, of the Physics Committee, was confirmed. This Sub-committee consists of Dr. Herbert E. Ives, Chairman, and Mr. Irving G. Priest.

The Chairman of the Council reported that Dr. W. H. Howell had been appointed as Vice-chairman of the Physiology Committee to serve as Chairman of the Committee during the absence of Dr. Cannon.

Dr. Victor C. Vaughan, Chairman of the Committee on Medicine and Hygiene, reported that he had appointed a Sub-committee on Psychiatry

under the chairmanship of Dr. Stewart Paton, with the following membership: Messrs. Pearce Bailey, Albert M. Barrett, Henry A. Cotton, Charles L. Dana, Walter E. Fernald, Adolf Meyer, Thomas W. Salmon, Elmer E. Southard, Roy M. VanWart, William A. White. Upon motion it was voted that the appointment of this Psychiatry Committee be confirmed.

Dr. Vaughan also reported that the Secretary of the Interior has permitted Dr. Franz at St. Elizabeth's Hospital to train men for rehabilitation work. He also stated that Dr. Murlin has been asked to make observations and report upon the food and rations which are issued to soldiers in training at Plattsburg.

Upon motion it was voted that a Sub-committee on the Sterilization of Water, with Dr. Phelps as Chairman, be appointed.

Dr. Vaughan further reported that he had been asked to serve as Chairman of the Research Committee of the General Medical Board of the Council of National Defense. He stated that the Surgeon General has consented that recruits in concentration camps be examined by experts instead of by individual medical officers, involving the necessity for the appointment of an Examining Board of the Army. Upon motion it was voted that the Chairmen of the Anatomy, Psychology, Psychiatry, and other related committees, be recommended for appointment on such an Examining Board, together with Colonel Bushnell, who is already a member.

The Chairman was requested to appoint a committee to report on co-operation between the National Research Council and the Research Committees appointed by the various states. The following committee was appointed for this purpose: Dr. C. E. Mendenhall, Chairman, Messrs. Bogert, Durand, W. B. Hale, and Vaughan.

It was voted that the sum of \$100 be allotted to the Psychology Committee.

Upon motion of Dr. Bogert the appointment of a Potash Committee, with Dr. J. D. Pennock, General Manager of the Solvay Process Company of Syracuse, N. Y., as Chairman, was authorized. Recommendations were submitted with regard to the membership of this committee.

The Chairman of the Council read a letter from Dr. Ames, Chairman of the Foreign Service Committee, and reported upon the activities and recommendations of this committee.

The Chairman of the Council reported the organization and appointment of a special New York Committee on Submarine Warfare, the Chairman of which is Dr. Nicholas Murray Butler, and the Executive Secretary, Dr. G. B. Pegram of Columbia University. Upon motion, this action was approved and confirmed.

The suggestion was made that the letterhead of the Council be changed to read "National Research Council, Acting as the Department of Science and Research of the Council of National Defense." This question was referred to the Chairman of the Council with power.

The Chairman reported the resignation of Mr. Tod Ford as Assistant Secretary of the Council, due to his acceptance as a member of the Lafayette Squadron in France. Mr. Dunn reported the election of Mr. Walter M. Gilbert as Assistant Secretary of the Engineering Foundation and that the Carnegie Institution of Washington had courteously detailed him for such work. Mr. Gilbert was thereupon elected as Assistant Secretary of the National Research Council.

Upon motion it was voted, subject to change, that subsequent meetings of the Executive Committee be held weekly on Thursday at 9 a.m.

The twenty-first meeting of the Executive Committee was held at the offices of the Council in Washington, May 28, 1917. In the absence of the Chairman of the Executive Committee, the meeting was called to order by the Chairman of the Council. Messrs. Hale, Millikan, Stratton, Vaughan, Walcott, and Welch were present. Mr. Manning, Chairman of the Noxious Gas Committee, and Messrs. Mendenhall and Durand were also present upon invitation.

Mr. Manning read a report of the Noxious Gas Committee, making recommendations for the establishment of a laboratory for the study of problems related to this subject.

Dr. Millikan presented a report of the Optical Glass Committee, stating that recommendations had been made to the General Munitions Board, had received its approval, and in turn had been recommended to the Council of National Defense.

Upon motion of Dr. Walcott the action of the Optical Glass Committee was approved and confirmed.

The Chairman of the Council stated that a French Scientific Mission would soon reach the United States and a discussion followed regarding its reception and means for its entertainment.

The twenty-second meeting of the Executive Committee was held at the offices of the Council in Washington, May 31, 1917. In the absence of the Chairman of the Committee, the meeting was called to order by the Vice-Chairman (Dr. Millikan) of the Council. Messrs. Bogert, Chittenden, Millikan, Pearl, Pupin, Walcott, and Welch were present. Messrs. Durand and Mendenhall were also present by invitation. Dr. Hale entered the meeting before its close.

The Vice-Chairman (Dr. Millikan) of the Council reported:

That a sum of \$5000 has been donated by Mr. Cleveland H. Dodge for the general purposes of the Council, and that an additional sum of \$100 has been received from another source; and that these funds have been placed in the hands of the Treasurer of the National Academy of Sciences for the use of the Council.

That the President of the National Academy of Sciences has appointed the following additional members of the Council;

Dr. ARTHUR L. DAY, Geophysical Laboratory, Washington, D. C.
Professor CHARLES E. MENDENHALL, Munsey Building, Washington, D. C.
Mr. F. H. NEWELL, University of Illinois, Urbana, Illinois.
Dr. STEWART PATON, Princeton, New Jersey.

After discussion, upon motion, it was

RESOLVED, That all bills for services, supplies, and incidental expenses pertaining to the work of the National Research Council be approved by the Chairman or by a Vice-Chairman of the Council and forwarded to the Treasurer of the National Academy of Sciences or to the Engineering Foundation for payment from funds available for the use of the Council.

Upon motion it was also voted that similar approval be, and hereby is, given for the payment of bills from funds which may be available for the use of the Council at any time through any other organization.

The Vice-Chairman read a letter from the Chairman of the Chemistry Committee with respect to the advisability of the appointment of a Sub-Committee on the Chemistry of Forest Products. Upon motion, Dr. John E. Teeple was appointed Chairman of such a Committee.

The Chairman of the Council suggested that it may become advisable to appoint a special committee on nautical instruments. Upon motion, the Chairman was authorized to appoint such a committee if it may prove advisable to do so after consultation with members of the General Munitions Board and of the Shipping Board.

It was decided upon motion, to have embossed the new letterhead to be used on stationery for the general offices of the Council and for its committees. The appointment of a special committee to consider other questions of detail with respect to the office business of the Council, was approved.

The twenty-third meeting of the Executive Committee was held at the offices of the Council in Washington, June 21, 1917, and was called to order by the Chairman of the Council. Messrs. Bogert, Hale and Stratton were present. Messrs. Durand and Mendenhall were also present upon invitation.

The Chairman reported:

That Mr. Edward D. Adams has donated the sum of \$5000 to the Engineering Foundation for the use of the National Research Council.

That Mr. Martin A. Ryerson has donated the sum of \$1000 for the use of the Council and this sum has been deposited to the credit of the Council in the Riggs National Bank, Washington.

That the Carnegie Corporation of New York at its meeting of June 4, 1917 authorized a grant of \$50,000 to the Carnegie Institution of Washington for purposes of the National Research Council, with the understanding that disbursements on account of this donation will be made at the discretion of the President of the Institution.

That Dr. Day, Mr. Mendenhall, Mr. Newell, and Dr. Paton have accepted appointment as members of the Council.

That at the request of the General Munitions Board, a special Committee on Navigation and Nautical Instruments has been appointed with Dr. L. A. Bauer, Director of the

Department of Terrestrial Magnetism of the Carnegie Institution of Washington, as Chairman, and the following as additional members:

Commander J. S. DODDRIDGE, U. S. Naval Observatory, representing the Bureau of Navigation.

Mr. Roy Y. FERNER, representing the U. S. Bureau of Standards.

Mr. R. L. FARIS, representing the U. S. Coast and Geodetic Survey.

It is probable that other members of the Committee will be appointed.

Upon motion it was then

RESOLVED, That the Executive Committee of the National Research Council desires to express to the trustees of the Carnegie Corporation of New York its appreciation of the generous and timely assistance which has been provided for purposes of the Council by means of an appropriation of \$50,000 to the Carnegie Institution of Washington to be disbursed through said Institution for such purposes.

Consideration was given to the question of the organization of the Council, and of representation in its membership of various scientific activities. Upon motion, the Chairman was requested to appoint a special committee to consider all such questions and report thereon at a subsequent meeting of the Committee. Dr. Bogert was named as the Chairman of this Special Committee and requested to confer with the Chairman of the Council with regard to its membership.

The Chairman presented letters from the Chairman of the Botany Committee and from Dr. E. M. East of the Bussey Institution relative to the appointment of a special committee on Botanical Raw Products. He also presented a letter from Dr. Earle H. Clapp, Chairman of the Committee on American Forest Research of the Society of American Foresters, urging the appointment of a special committee on forestry. After discussion, the Special Committee of the Council on Organization and Representation, of which Dr. Bogert has been appointed Chairman, was requested to give early consideration to questions raised by the suggestions and recommendations just submitted, with particular reference to the relation of work on forest products to other activities of the Council.

Upon recommendation of the Chairman of the Anthropology Committee, Dr. Charles B. Davenport, Cold Spring Harbor, New York, was appointed a member of this Committee in place of Dr. Tom A. Williams, who has been detailed for foreign service.

Dr. Mendenhall submitted the following report of the Committee of the Council appointed to consider questions of relations to State Councils of Defense:

The Committee appointed to consider the question of the organization of state research committees and their relation to the National Research Council reports as follows:

In the opinion of the Committee the matter of the usefulness and value of state research committees is in the experimental stage at present, so that it is undesirable for the National Research Council to take the positive attitude of urging the formation of such committees. It seems best to allow developments to take place in accordance with local needs, but to take

the precaution of outlining a form of procedure to recommend to the state councils of defense in case the organization of research committees is decided upon.

The Committee therefore recommends that a letter be sent to the proper officer of all the state councils of defense which have not already organized research committees, embodying the points considered below, and that a letter offering the complete co-operation and assistance of the National Research Council be sent to those state councils which have already organized research committees.

The National Research Council has carefully considered the question of the general organization of State Committees or Councils of Research, and has come to the conclusion that such organization should be determined by local needs and conditions. Local causes, such as the development or investigation of natural resources or the proper development of the use of research methods in industries, or the correlation of industries with research laboratories already existing at educational institutions, may make it very desirable to organize such state research committees. In fact, the present emergency offers, in some respects, an unusual opportunity for improving the correlation of industry and research, and it is highly desirable that those concerned with this development should not only consider it with reference to the emergency but should also plan for the permanent continuance of any research committees which may be formed.

If such a committee is decided upon, the National Research Council is desirous of co-operating in every possible way and suggests the following scheme of organization: Committees should be organized under the State Council of Defense (or similar official body) and at least their general expenses provided for by the state: they should be representative of the universities and other leading educational institutions through members chosen from their scientific and engineering research departments and also of those industries in which applied science plays the most important part. In choosing the personnel of the Committee in accordance with this general scheme, it is recommended that it include some representation from the committees on research of the universities of the state. Such a State Research Committee would be chiefly active through subcommittees assigned to consider particular questions, but should have a permanent secretary to handle correspondence and through whom close contact could be maintained with the National Research Council.

Upon motion, this report was adopted, and the recommendations contained therein approved.

CARY T. HUTCHINSON, *Secretary.*

NOTICES OF BIOGRAPHICAL MEMOIRS

The following biographical memoirs has been published by the Academy since the last notices of such memoirs appeared in the December, 1916, number of the PROCEEDINGS.

ALFRED MARSHALL MAYER (1836-1897). By ALFRED G. MAYER and ROBERT S. WOODWARD. *Biographical Memoirs of the National Academy*, 8, pp. 243-272.

This Memoir follows the life-work of Alfred M. Mayer according to the outline: Ancestry, Early Self-education, Friendship with Joseph Henry, Successive College Positions, varied scientific interests and publications, 'Mayer's Law for Human Audition', Interest in Natural History, Magnetic Studies, Foreign Visits, Inactive Middle Period, and Fruitful Close of Life. A bibliography of 76 titles concludes the Memoir.